SONY

3-756-654-21(2)

FM Stereo/FM-AM Tuner Amplifier System

Operating Instructions

STU-531
TA-AV531
ST-JX431

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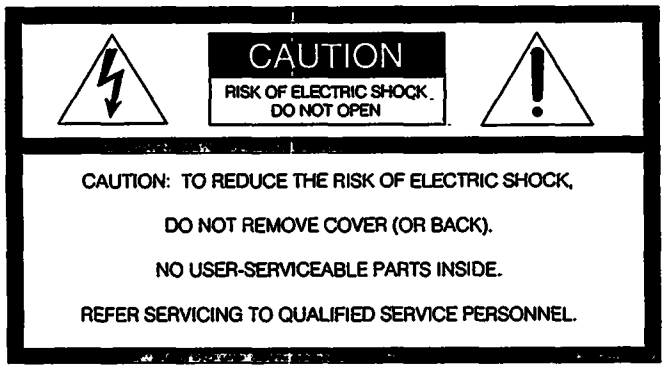
WARNING

To prevent fire or shock hazard, do not expose the unit to rain or moisture.


CAUTION
RISK OF ELECTRIC SHOCK
DO NOT OPEN
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

This symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

* The graphical symbols are on the rear enclosure.

Note to CATV system installer
This reminder is provided to call the CATV system installer's attention to Article 820-40 of the NEC that provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Owner's Record
The model and serial numbers are located at the rear. Record these numbers in the spaces provided below. Refer to these numbers whenever you call upon your Sony dealer regarding this product.

TA-AV531 Serial No._____
ST-JX431 Serial No._____

INFORMATION
This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

— Reorient or relocate the receiving antenna.
— Increase the separation between the equipment and receiver.
— Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
— Consult the dealer or an experienced radio/TV technician for help.

CAUTION
You are cautioned that any changes or modifications not expressly approved in this manual could void your authority to operate this equipment.

CAUTION
The use of optical instruments with this product will increase eye hazard.

Precautions

On safety

- Operate the unit only on 120 V AC, 60 Hz.
- Should any solid object or liquid fall into the unit, unplug it and have it checked by qualified personnel before operating it any further.
- Unplug the unit from the wall outlet if it is not to be used for an extended period of time. To disconnect the cord, pull it out by grasping the plug. Never pull the cord itself.

On installation

- Place the unit on a level surface.
- Do not install the unit in a location near heat sources such as radiators or air ducts, or in a place subject to direct sunlight, excessive dust, mechanical vibration or shock.
- Good air circulation is essential to prevent internal heat buildup in the unit. Place the unit in a location with adequate air circulation. Do not place the unit on a soft surface, such as a rug that would block the ventilation holes on the bottom.
- Do not place anything on top of the cabinet. The top ventilation holes must be unobstructed for the proper operation of the unit and to prolong the life of its component.

On cleaning the cabinet

Clean the cabinet, panel and controls with a soft cloth lightly moistened with mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzine.

On repacking

Do not throw away the carton and the packing material. It makes an ideal container to transport the unit in.

If you have any question or problem concerning your unit, please consult your nearest Sony dealer.

For detailed precautions, see the leaflet "IMPORTANT SAFEGUARD".

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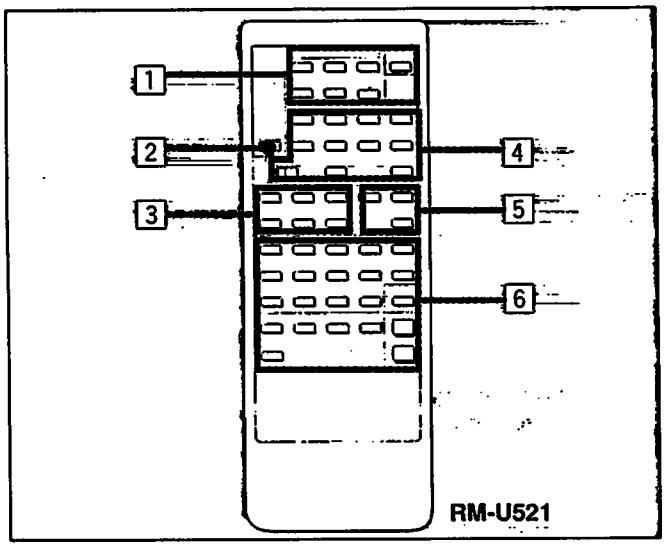
Remote Commander

The remote commander supplied with this unit can control the unit from a distance. The remote commander is divided into 6 sections according to the functions as shown below.



1 Power control block

SYSTEM OFF button: Turns off the power of the whole system: LDP, VTR, TV, and AUDIO.
LDP/VTR1/VTR2/VTR3/TV/AUDIO POWER buttons: Control the power of each unit.

2 MODE selector

Selects the function mode on the remote commander.
1: To select the functions indicated in light gray such as DECK, DAT, CD player and the SURROUND mode of amplifier.
2: To select the functions indicated in blue such as VTR, LDP (Laser disc player) and TV.

3 CDP/LDP control block

The combined CD/LD player can be controlled with LDP position.
►: Play
II: Pause
■: Stop
D (disc) SKIP: Disc skip (for a CD player equipped with a multi-disc changer)
◄◄/►►: Manual search (only for LD player)
I◄◄/►►I: Locates a desired selection.

4 Tape deck/VCR control block

DECK/VTR selector
DECK A,B, and DAT: Selects Deck A, B or DAT deck.
VTR 1, 2, and 3: Set to the VTR 1, 2 or 3 according to your VCR setting.
1: Betamax VCRs
2: 8 mm VCRs
3: VHS VCRs
II: Pause
■: Stop
◄◄/►►: Fast winding
◄/►: Play
● (REC): Recording
ANT (antenna) TV/VTR button: Selects the output signal from the antenna terminal on the VCR, either a TV signal or VCR programs.
VTR CH (channel) +/– buttons: Select channel on the VCR.

5 Tuner/TV block

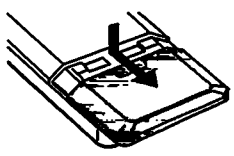
SHIFT and TUNER PRESET/ TV CH (channel) +/– buttons: Select a preset station of the tuner or a channel of the TV.

6 Amplifier/TV block

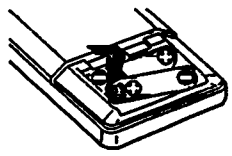
TV/VIDEO button: Selects the input signal of the TV. (for TV)
Program number (1 to 0) and ENTER buttons: Select the channel. (for TV)
SURROUND mode selectors (for the amplifier)
ON/OFF: Turns on/off the surround mode.
MODE: Selects the surround mode.
T.(Test) TONE: Generates a pink noise signal that is sent in succession to each speaker.
DELAY: Adjust the delay time.
FUNCTION selectors: Select an input source of the amplifier. (for the amplifier)
REAR VOL +/– buttons: Control the volume of rear speakers (surround level).
CENTER VOL/TV VOL +/– buttons: Control the volume of center speaker (surround level) or TV.
DBFB button: Turns on/off the DBFB (Dynamic Bass Feed Back). (for the amplifier)
MASTER VOL +/– buttons: Control the amplifier volume (for the amplifier).

Inserting the batteries into the remote commander

1 Open the cover.



2 Insert two size AA (R6) batteries with correct polarity.



Battery life

About half a year of normal operation can be expected when using the Sony SUM-3 (NS) batteries.
When the batteries are exhausted, the commander can no longer operate the unit. Replace both batteries with new ones.

To avoid battery leakage

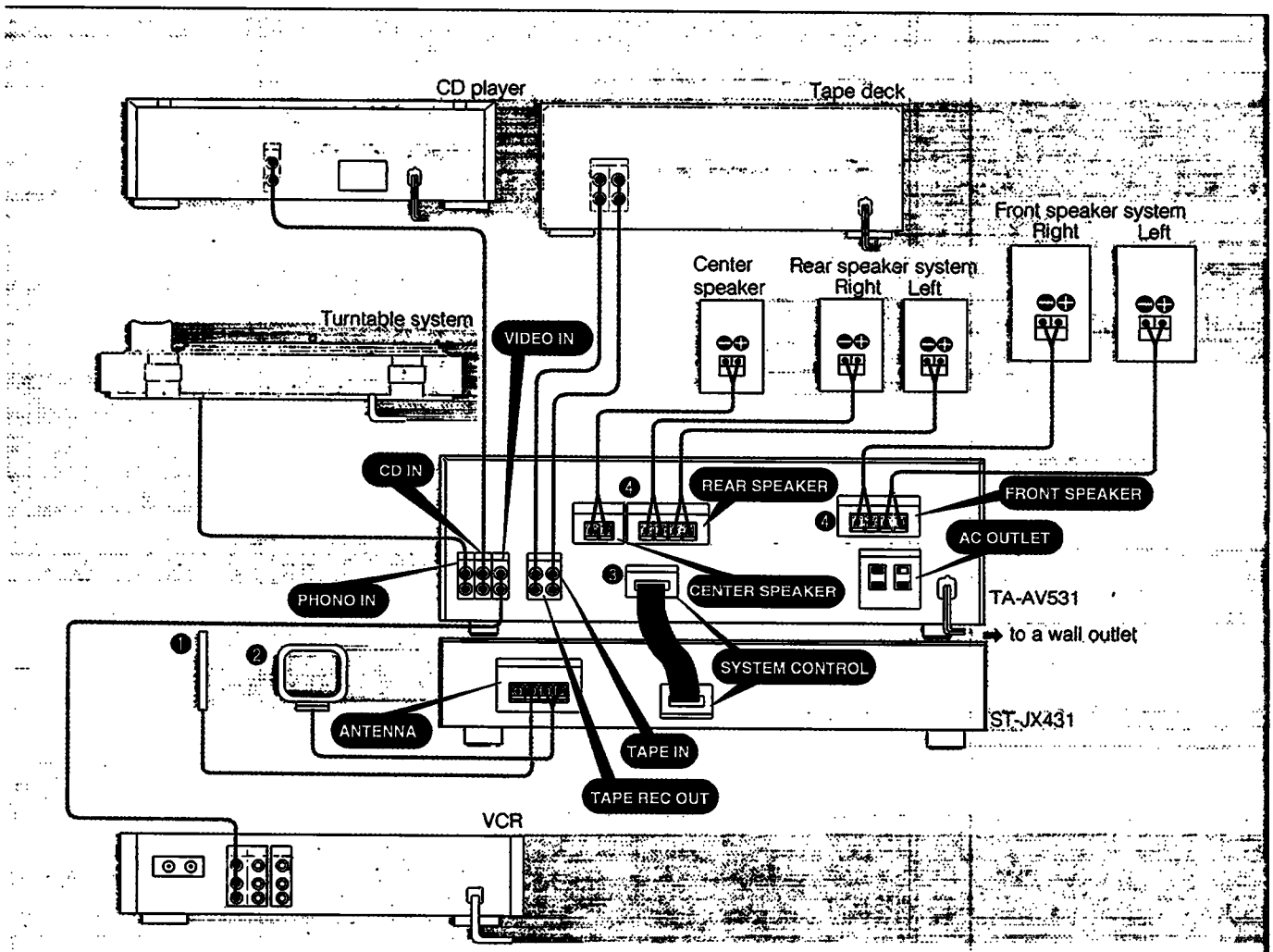
When the commander is not to be used for a long period of time, remove the batteries to avoid damage caused by battery leakage and corrosion.

Hooking Up the System

- Connect the AC power cord last. Make sure power is off.
- Cord plugs and jacks are color coded. Red plugs and jacks are for right channel (R) and white ones for the left channel (L).
- The cable connectors should be fully inserted into the jacks. A loose connection may cause hum and noise.
- Keep speaker cords, connecting cords and power cords away from the AM loop antenna and the tuner's antenna lead-in to avoid possible noise pickup.

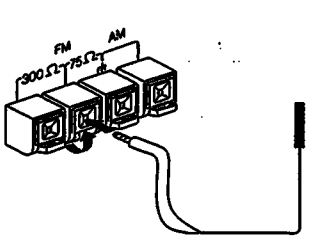
CAUTION

Do not put anything like another unit to obstruct the ventilation holes on the top of the unit.
The level surface installation is required for essential air ventilation to prevent internal heat built up in the unit.

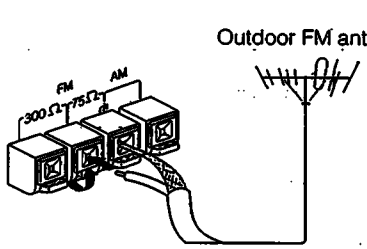


❶ FM antenna

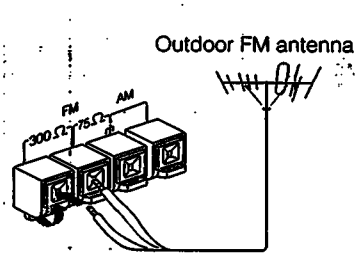
For better FM reception



FM wire antenna
(supplied)

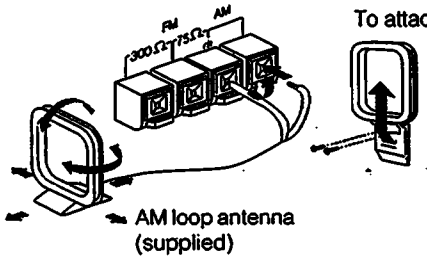


75-ohm coaxial cable
(optional)



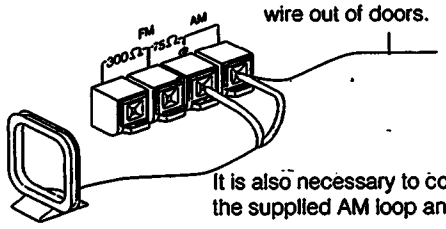
300-ohm twin-lead
(optional)

❷ AM antenna



For better AM reception

Extend a 6 to 15-meter insulated wire out of doors.

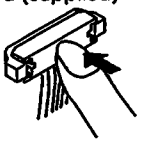


It is also necessary to connect the supplied AM loop antenna.

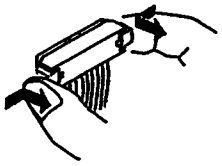
❸ SYSTEM CONTROL Connection

Connect each SYSTEM CONTROL jack of the amplifier and tuner cord with the SYSTEM CONTROL cord (supplied) for controlling the unit.

SYSTEM CONTROL cord (supplied)

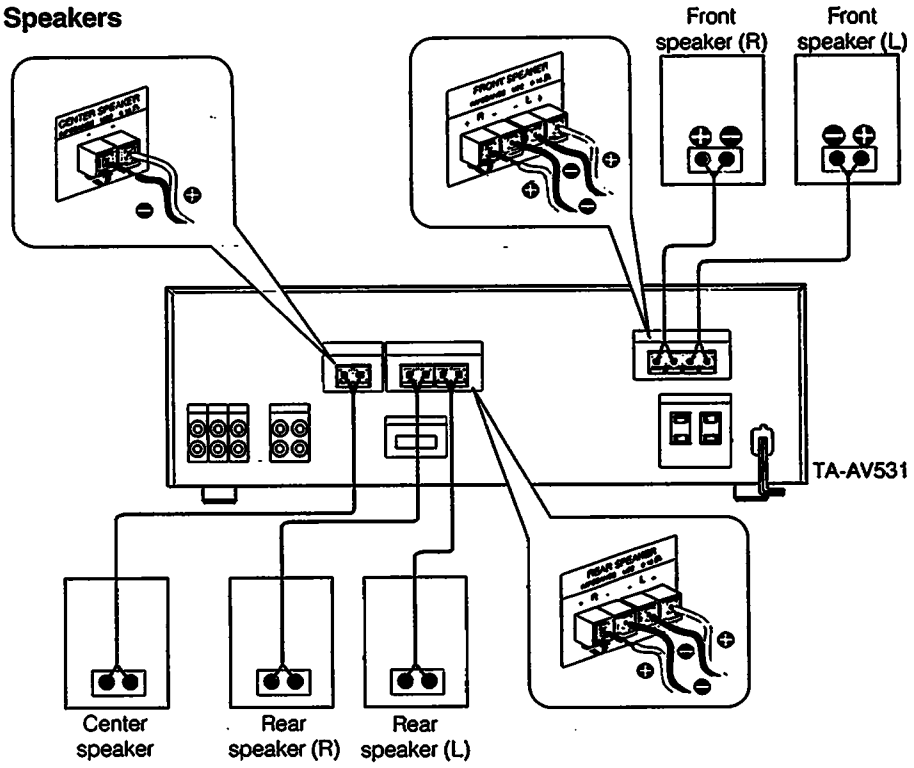


Push in until it clicks.



To disconnect, pull out while pressing the both sides of levers.

❹ Connecting Speakers



Front speakers
Connect the front speaker systems to the FRONT SPEAKER terminals.

Rear speakers
Connect the rear speaker systems to the REAR SPEAKER terminal for enjoying surround sound.

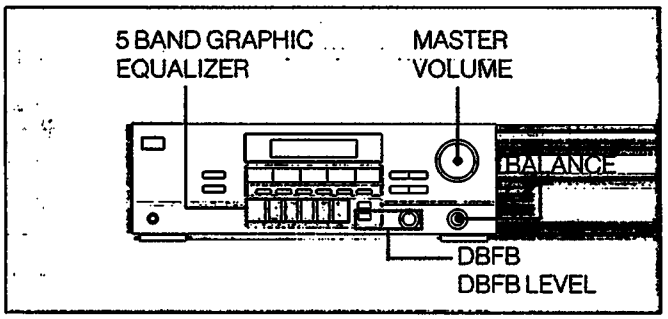
Center speaker
You can connect a center speaker to the CENTER SPEAKER terminal for enjoying surround sound. The sound such as a dialog comes from the center.

Note on speaker impedance and power capacity
This amplifier is designed to work best with speakers of nominal impedance from 8 to 16 ohms (Center speaker: from 4 to 16 ohms). Be sure to use a speaker system with adequate power handling capability.

Note
When connecting the speaker cord to the speaker terminal, make sure that the polarity (+ and –) of the speaker cord is correct. If the polarity is reversed at either speaker, the sound will be distorted and will lack bass.

Adjusting the Audio

You can enjoy superb sounds using the audio adjustment functions as shown below.



Adjusting Volume

To increase the sound level, turn the MASTER VOLUME clockwise.
To decrease it, turn the control counterclockwise.

Note

When listening with headphones connected to the HEADPHONES jack, no sound can be heard from the speakers system. To turn off the rear and centre speakers, set SURROUND to off.

Adjusting Balance

To change relative strength of the right and left speaker outputs, adjust the BALANCE control.

Reinforcing the Bass Sound

Press DBFB (Dynamic Bass Feed Back) to obtain the DBFB effect.
To make bass sound powerful, turn the DBFB LEVEL control clockwise. The lower the volume, the more the bass sound is emphasized.

Adjusting Sound Quality

To adjust tone quality

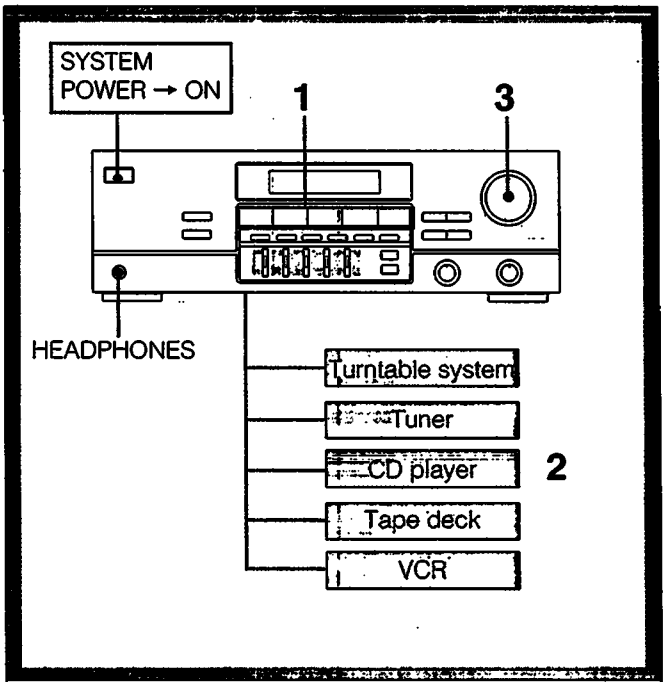
Adjust the 5 BAND GRAPHIC EQUALIZER controls according to:

- Personal preference.
- The room acoustics. For instance, playback in a room with padded walls or furniture will probably sound better with the high frequencies boosted.
- Program quality. If reproduction contains hiss, cutting the higher frequencies will improve playback sound quality.

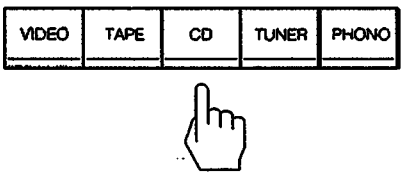
Functions of the graphic equalizer controls

100 Hz: Boosts or cuts bass.
330 Hz: Adjusts the power, spaciousness and warmth of the sound.
1 kHz: Provides more presence for vocals.
3.3 kHz: Boosts a brighter sound or reduces stridency.
10 kHz: Highlights the delicate quality of instrumental sound.

Listening to a Program Source



1 **Select the program source to be played back.**



2 **Start playback of the selected program.**

3 **Adjust the volume.**

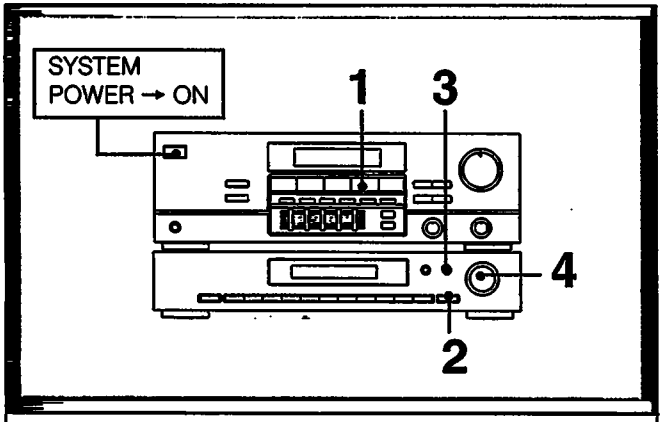
For personal listening

Connect headphones to the HEADPHONES jack.

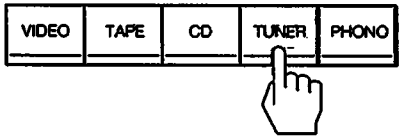
Receiving Broadcasts

This section describes about the various ways of tuning which are very convenient.
Before reception, be sure to connect the supplied AM and FM antenna.

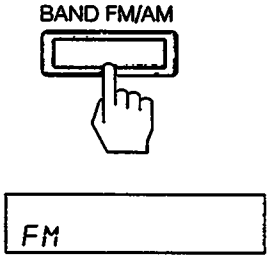
Tuning in Automatically



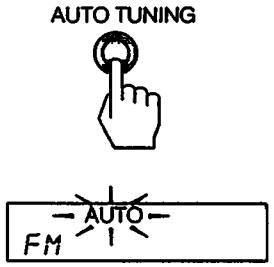
1 **Press TUNER.**



2 **Press BAND FM/AM to select FM or AM.**



3 **Press AUTO TUNING to set to the AUTO TUNING mode.**



4 **Select the station.**

For a lower frequency. For a higher frequency.

When a station is received automatic tuning stops.

Indicators in the display

- "TUNED" appears when a station is tuned in.
- "STEREO" appears when an FM stereo program of sufficient signal strength is received.

To change the AM tuning interval

The AM tuning interval is preset at the factory to 10 kHz to match the frequency allocation system of your country. To change the interval to 9 kHz, proceed as follows.

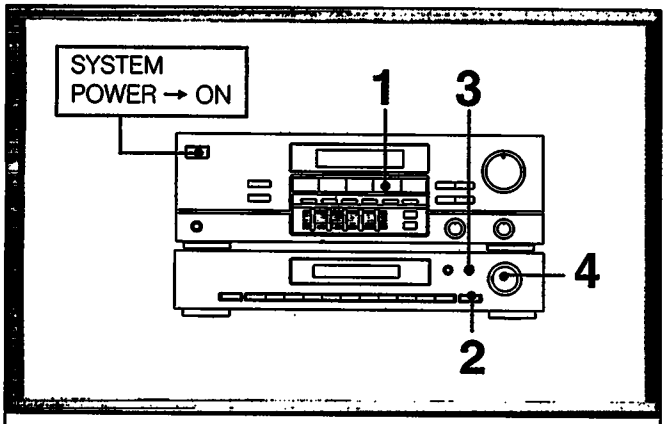
1 Press SYSTEM POWER to turn on the unit.
2 Set the BAND selector to AM.
3 Press SYSTEM POWER to turn off the unit.
4 While pressing TUNING +, press SYSTEM POWER again to turn on the unit.

To reset the interval to 10 kHz, follow the same procedure.

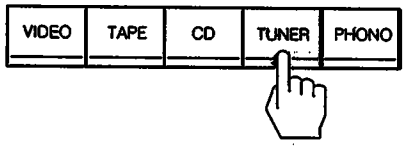
Note

When the interval is changed, all stored stations will be erased from the memory. After changing the interval, be sure to store the stations again.

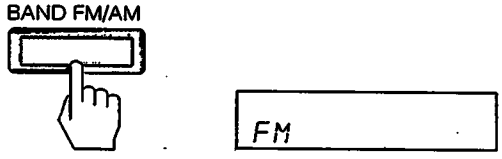
Tuning in Manually



1 **Press TUNER.**



2 **Press BAND FM/AM to select FM or AM.**



3 **Press AUTO TUNING to release the AUTO TUNING mode.**

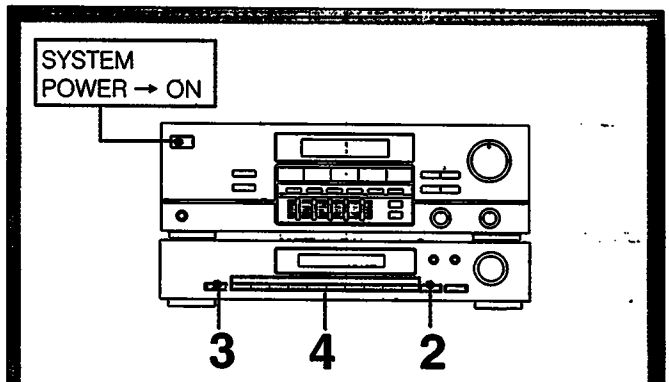
"AUTO" goes off on the display.

4 **Select the station.**

For a lower frequency. For a higher frequency.

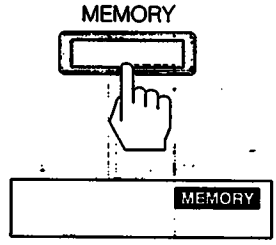
Storing Station Frequencies into Memory

Up to 10 stations can be stored in any order for each memory page (A, B, C). Therefore, 30 stations can be stored in total.



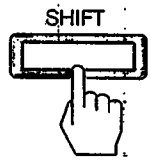
1 **Tune in a desired station.** **(See pages 8 to 9.)**

2 **Press MEMORY.**



3 **While "MEMORY" appears on the display, press SHIFT to select the memory page (A, B or C).**

A - 1, A - 2, ...A - 0
B - 1, ...B - 0
C - 1, ...C - 9, C - 0

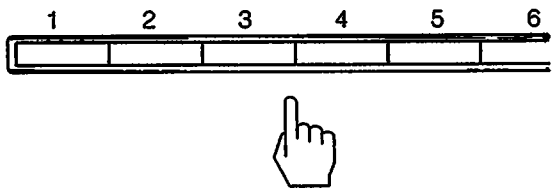


Each time SHIFT is pressed, A, B or C is indicated cyclically.

(to be continued)

(continued)

4 While "MEMORY" appears, select the desired number with the numeric buttons.



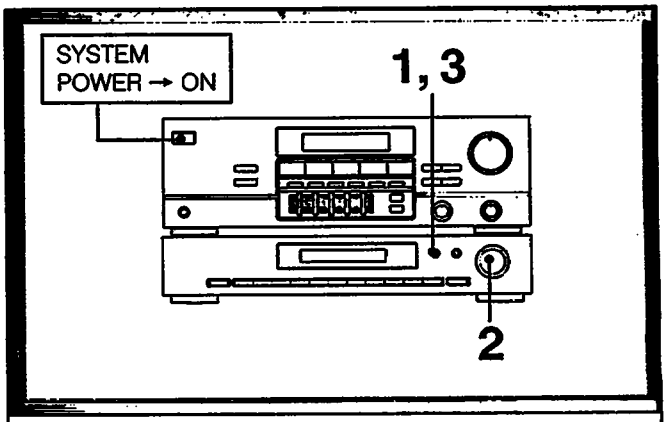
If you cannot store a station successfully
You can store a station only while "MEMORY" appears on the display.
If "MEMORY" has gone off, press MEMORY again.

How long does a station remain stored ?
Storing a new station on a used code erases the previously stored one.

Tuning in a Stored Station

1 Press TUNER.
The CD player is automatically turned off in the TUNER mode.
2 Press SHIFT.
3 Designate the number with the numeric buttons.

Scanning Stored Stations – Memory Scanning



1 Press MEMORY SCAN.

MEMORY SCAN

The code indicator flashes in the window.

2 Turn the TUNING knob.

To scan stations with preceding codes.

To scan stations with succeeding codes.

3 Press MEMORY SCAN as soon as the desired station is received.

MEMORY SCAN

The scanning stops.

When the memory scan skips the stations during memory scanning
The memory scan will skip stations which have a very weak signal.

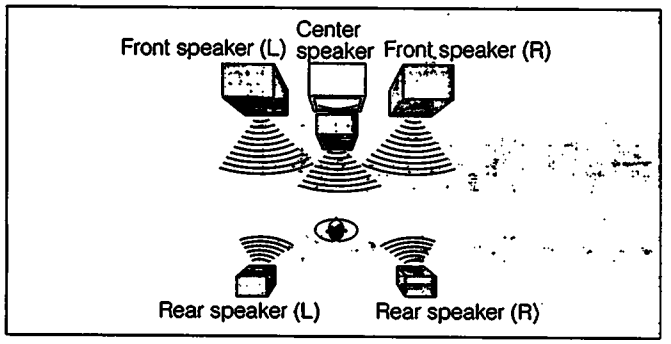
If you cannot scan successfully
Turn the TUNING knob while the code indicator is flashing.
If the flashing has stopped, press MEMORY SCAN again.

Getting Ready to Enjoy Surround Sound

This section describes about selecting the speaker configuration for the surround system and then adjusting the speaker volume and the delay time of the rear speakers so that you can enjoy the Dolby surround sound.

Positioning the Speakers

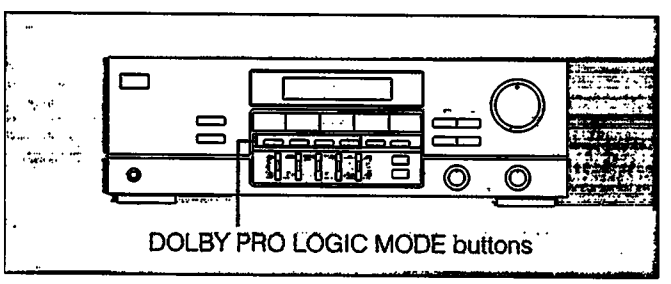
Where you place the speakers depends on the size and acoustics of the listening room.
The figure below are just examples.
We recommend that you experiment to find the speaker direction or location in which the most effective acoustics can be obtained.



Placement of Speakers and Selecting the PRO LOGIC MODE

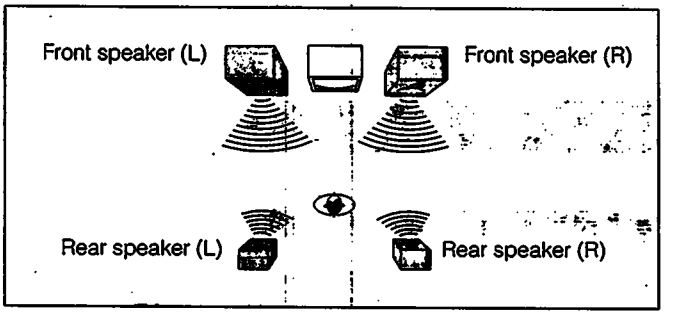
The Dolby* Pro Logic Surround Decoder has the same functions for playback, such as movie theaters and gives a theater-like experience in your listening room, naturally reproducing the audio sound field.

The TA-AV531 incorporates a decoder which reproduces the specially encoded surround sound of Dolby surround video programs.
In the SURROUND mode, a speaker operation mode can be selected to match your speaker system.
A center speaker is required in addition to the basic four speakers.
The setting on which the vocal image will be located on the center of the TV screen is better affect to surround effect.
In the SURROUND mode, select the speaker operation mode according to your speaker configuration by pressing the PHANTOM, NORMAL, WIDE or 3 CH button.

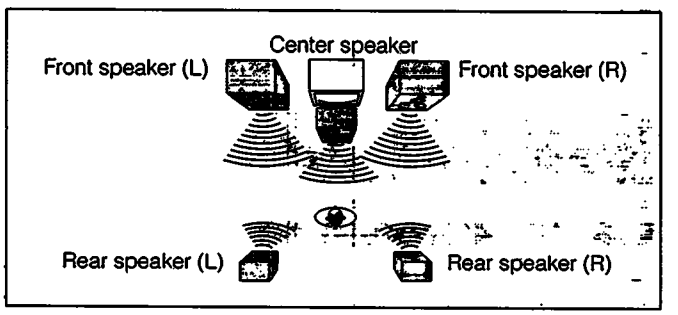


* Manufactured under license from Dolby Laboratories Licensing Corporation. Additionally licensed under one or more of the following patents: U.S. number 3,959,590: Canadian numbers 1,004,603 and 1,037,877. "Dolby", "Pro Logic", and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

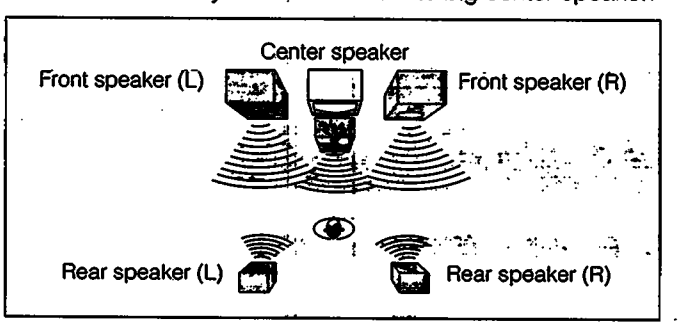
PHANTOM mode
Select this mode when you do not use center speaker. The sound of the center channel can be heard from the front speakers.



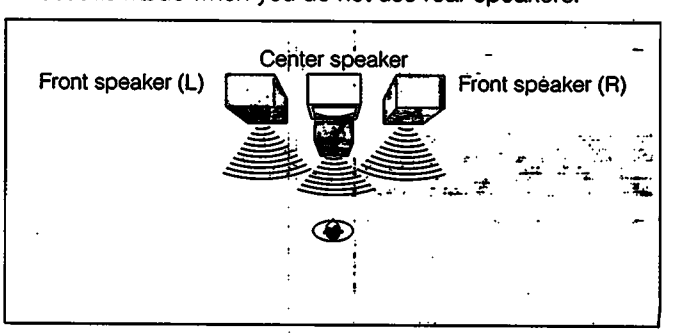
NORMAL mode
Select this mode if you use small center speaker. The bass sound of the center channel is output from the front speakers, as small speaker cannot produce enough bass.



WIDE mode
Select this mode if you use a medium to big center speaker.

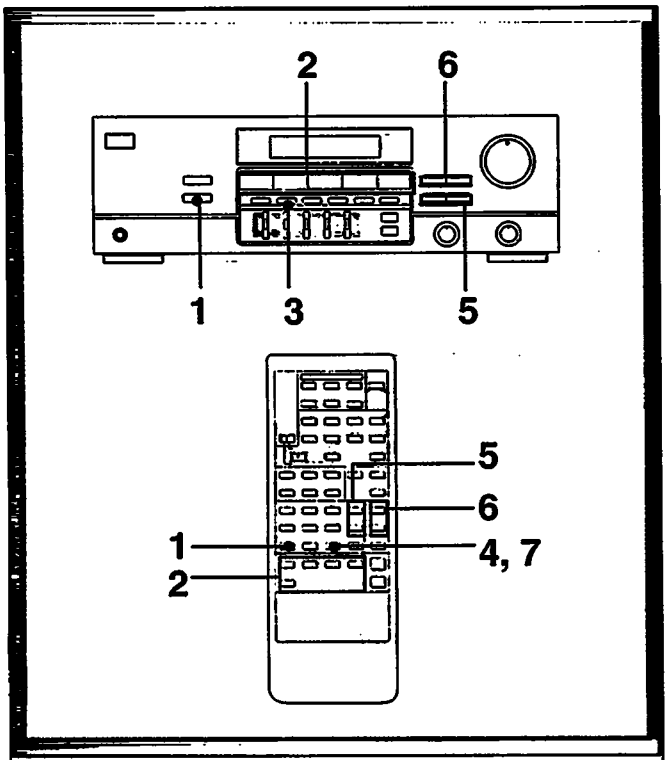


3CH mode
Select this mode when you do not use rear speakers.



Adjusting the Speaker Volume

To adjust the surround sound to the maximum on playing any program sources, adjust the front, rear and center (if connected) speakers to the same volume level. The adjustment must be done with a test tone in the DOLBY PRO LOGIC MODE, but the level once adjusted can be used for all DOLBY PRO LOGIC MODEs.
You can adjust the volume level from your listening position by using the remote commander.



1 **Press the SURROUND button on the front panel or SURROUND ON/OFF button on the remote commander to set to the SURROUND ON mode.**

2 **Select a program source with the function selector and start playback.**

3 **Select the NORMAL mode with the NORMAL button on the front panel.**

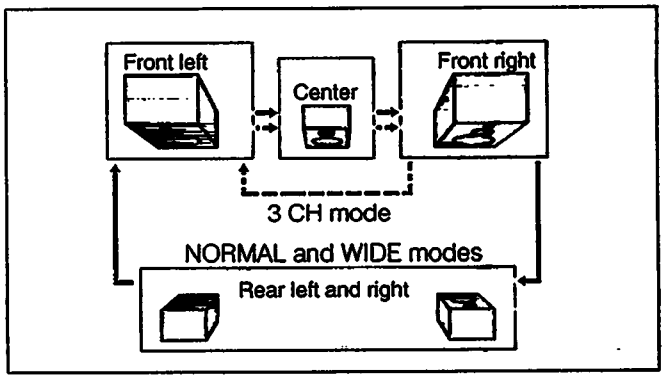
4 **Press the T. TONE button on the remote commander.**

5 **Adjust the level of rear speakers with the REAR LEVEL + or – button on the front panel or the REAR VOL + or – button on the remote commander.**

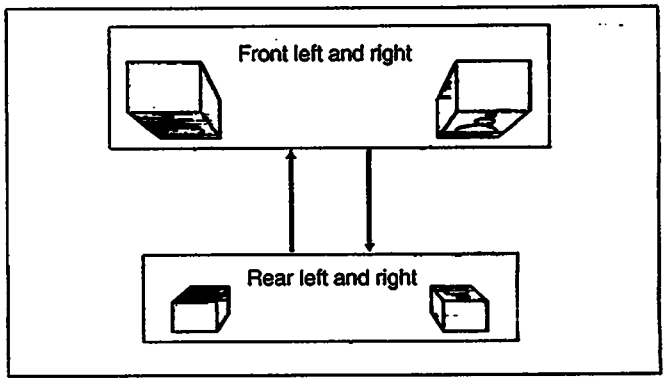
6 **Adjust the level of center speaker with the CENTER LEVEL + or – button on the front panel or the CENTER VOL + or – button on the remote commander.**

7 **Press the T.TONE button on the remote commander to set to off.**

Sequence of the test tone
In a system with a center speaker:
The test tone will be output automatically from the front left, center, front right, and the rear speakers in succession.



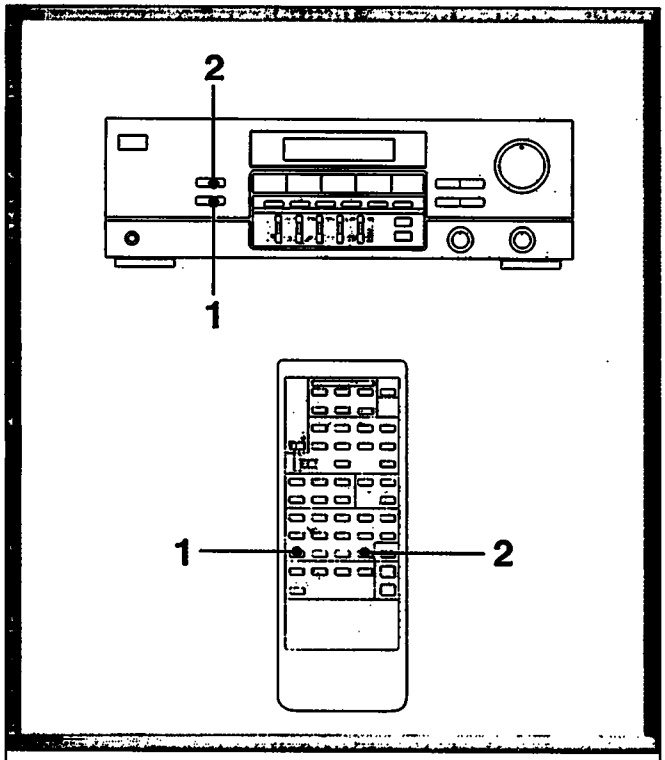
In a system without a center speaker:
The test tone will be output automatically from the front speakers and rear speakers alternately.



Listening with the Surround Effect

Adjusting the Delay Time of the Rear Speakers

The delay time is a time between the surround sound from the front and that from rear speakers. Select the delay time 15.0 ms, 20.0 ms or 30.0 ms.



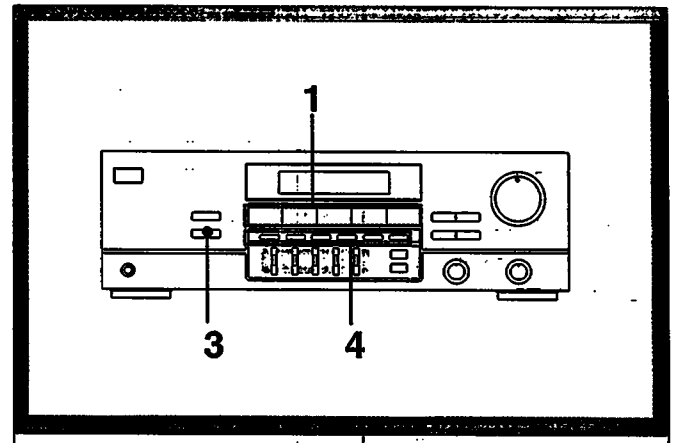
1 **Press the SURROUND button on the front panel or the SURROUND ON/OFF button on the remote commander to set to the SURROUND mode.**

2 **Select the delay time with the DELAY TIME button on the front panel or the DELAY button on the remote commander.**

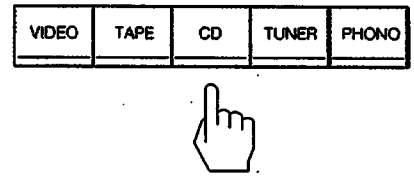
To turn off the surround effect
Press the SURROUND button on the front panel or the SURROUND ON/OFF button on the remote commander again.
The normal sound without surround effect will resume.

Both level and delay time of the surround is memorized each time after adjusting. They will be restored when the surround mode is resumed.

Note
The delay time for the rear speakers can be adjusted even in the 3 CH mode.

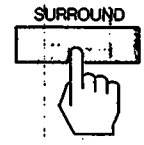


1 **Select the program source.**

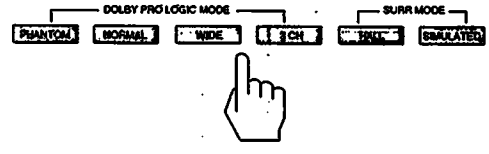


2 **Start playback of the selected program.**

3 **Press the SURROUND button to set to on.**



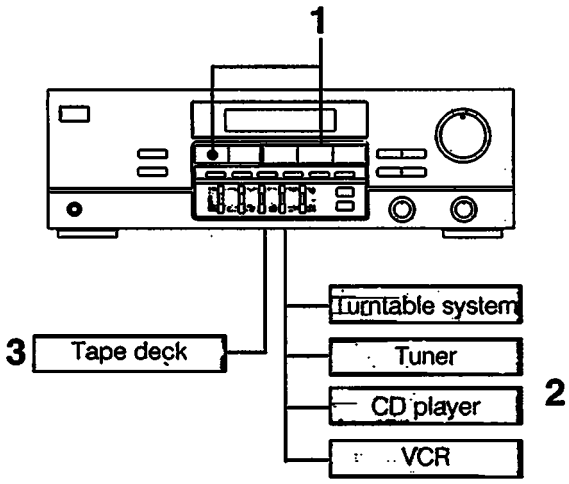
4 **Select the surround mode with the DOLBY PRO LOGIC MODE buttons or the SURR MODE* buttons.**



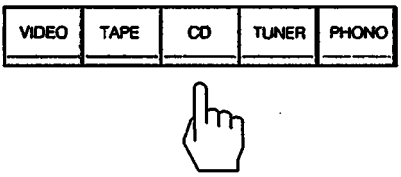
* You can select the surround modes with the SURR MODE buttons.
HALL (Hall surround): Provides reverberation effect that is produced in a concert hall.
SIMULATED (Simulated surround): Gives a simulated stereo effect to monaural sound.

Note
No sound will be heard from the rear and center speakers, unless one of the DOLBY PRO LOGIC MODE or SURR MODE is selected.

Recording



1 **Select the program source to be recorded other than TAPE.**



2 **Start playback of the selected program.**

3 **Set the tape deck in the recording mode.**

Note

The MASTER VOLUME, 5 BAND GRAPHIC EQUALIZER, BALANCE, SURROUND controls and the DBFB LEVEL control have no effect on recording.

Specifications

AUDIO POWER SPECIFICATIONS

POWER OUTPUT AND TOTAL HARMONIC DISTORTION:

With 8-ohm loads, both channels driven, from 40 - 20,000 Hz; rated 135 watts per channel minimum RMS power, with less than 0.9% total harmonic distortion from 250 milliwatts to rated output.

TA-AV531

Power bandwidth (IHF)	30 Hz – 30 kHz (8 ohms)
Dynamic headroom	1.7 dB ('78 IHF)
Harmonic distortion	Less than 0.9% at rated output (Surround OFF)
Frequency response	PHONO: RIAA equalization curve CD, VIDEO, TUNER, TAPE: 10 Hz – 50 kHz ±3dB
Rear output	15 W + 15 W (at front off 8 ohms)
Center output	30 W (at front off 4 ohms)
Damping factor	27 (8 ohms, 1 kHz)

Input

Input jack	Jack type	Sensitivity	Impedance	S/N (weighting network, input level)
PHONO	Phono	3.0 mV	50 kilohms	71 dB 75 dB* (A, 3.0 mV)
CD,VIDEO, TAPE	Phono	250 mV	50 kilohms	92 dB 83 dB* (A, 250 mV)

*'78 IHF

Output

TAPE (REC OUT)	Phono jacks	Voltage 150 mV Impedance 1 kilohm
SPEAKERS (Front, Rear)	—	Accepts speakers of 8 – 16 ohms
SPEAKERS (Center)	—	Accepts speakers of 4 – 16 ohms
HEADPHONES	Stereo phone jack	Accepts low and high impedance headphones.

GRAPHIC EQUALIZER controls
Boost/Cut range: ±8 dB (100 Hz, 330 Hz, 1 kHz, 3.3 kHz)
±6 dB (10 kHz)

Dimensions	Approx. 430 x 145 x 360 mm (w/h/d) (17 x 5 3/4 x 14 1/4 inches) (including projecting parts and controls)
Weight	Approx. 9.9 kg (21 lb 14 oz)

ST-JX431

System	FM stereo, FM/AM superheterodyne tuner Quartz-locked digital synthesizer system
FM tuner section	
Tuning range	87.5 – 108 MHz
Antenna terminals	75 ohms unbalanced 300 ohms balanced
Intermediate frequency	10.7 MHz
Sensitivity (at 50 dB quieting)	22.1 dBf, 7 µV (mono), 42.1 dBf, 70 µV (stereo)
Usable sensitivity	19.5 dBf, 5 µV (IHF)
Signal-to-noise ratio (at 75 kHz deviation)	80 dB (mono), 75 dB (stereo) at 1 kHz
Separation	35 dB at 1 kHz
Selectivity	55 dB at 400 kHz
Harmonic distortion	0.3% (mono), 0.5% (stereo) at 1 kHz
AM tuner section	
Tuning range	530 – 1,710 kHz
Antenna	AM loop antenna, External antenna terminal
Intermediate frequency	450 kHz
Usable sensitivity	AM loop antenna: 500 µV/m (1,000 kHz)
Signal-to-noise ratio	54 dB
Harmonic distortion	0.5%
Selectivity	38 dB (10 kHz)
Dimensions	Approx. 430 x 80 x 295 mm (w/h/d) (17 x 3 1/4 x 11 5/8 inches) (including projecting parts and controls)
Weight	Approx. 2.1 kg (4 lb 11 oz) net

General

Power requirements	120 V AC, 60 Hz
Power consumption	250 W
AC outlets	2 switched, 120 W/1 A max.
Accessories supplied	AM loop antenna (1) FM wire antenna (1) SYSTEM CONTROL cord (1) Remote Commander RM-U521 (1) Sony batteries SUM-3(NS) (2)

Design and specifications are subject to change without notice.

Troubleshooting

Before going through the check list below, first refer back to the connection and operating procedures.
Should any problem persist after you have made these checks, consult your nearest Sony dealer.

Trouble	Remedy
No audio.	• Check the power cord connection.
	• Check the connections.
	• Check the setting of the function selector.
	• Check the speaker terminal connection and the speaker cord for a short.
No audio from one channel.	• Adjust the BALANCE control.
	• Check the speaker cord or connecting cord connection.
Lack of bass sound or obscure instrument position.	• Check the connection between the amplifier and speakers.
Noise when TV is turned on.	• Move the TV away from the audio system.
Turning on DBFB LEVEL control does not affect the sound.	• The DBFB button is set to off.
	• The DBFB LEVEL control reinforces only low frequencies.
The operation cannot be performed with the remote commander.	• Check that the batteries are loaded correctly.
	• Check if there is any obstacle between the remote commander and the amplifier.
	• Check if the batteries are exhausted.
No sound or sound at very low level is heard from rear speakers.	• Check if the SURROUND button is set to off. (No indicators are lit.) (See page 13.)
	• Check if the volume level of the rear speakers is set to minimum.
	• Check if the monaural program source is played back in Dolby surround mode.
	• Check if the 3CH mode is selected in the DOLBY PRO LOGIC MODE. (See page 11.)
When connecting the turntable system, hum or noise comes out from the speakers.	• When the turntable system has an earth cord, connect it to the ⏚ terminal of the tuner.
STEREO indicator flashes.	• A very weak FM station or a noisy FM program is received. Adjust the antenna or connect an external FM antenna.
Severe hum or noise.	• The signal strength is too weak. Adjust the antenna, connect an external antenna or connect the ground wire.

Sony Corporation Printed in Malaysia